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                 spectra
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FILE LAST UPDATED: 3 Apr 2008 (20080403/ED)

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1521177 BETA
5056 SIALON
L1 1580 BETA SIALON
(BETA(W)SIALON)

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52557 EU
67714 EUROPIUM
L2 23 L1 AND (EU OR EUROPIUM)

=> d 1-23 bib,ab

L2 ANSWER 1 OF 23 CAPLUS COPYRIGHT 2008 ACS on STN

Full Text | Add to ReformatLink

AN 2007:1420407 CAPLUS
DN 148:41947
TI Fluorescent material, its manufacture, and illuminator employing it
IN Kawasaki, Takashi; Kawagoe, Mitsuru
PA Denki Kagaku Kogyo Kabushiki Kaisha, Japan
SO PCT Int. Appl., 27pp.
CODEN: PIXXD2
DT Patent
LA Japanese
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2007142289	A1	20071213	WO 2007-JP61529	20070607
	W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, SV, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW				
	RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, MT, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG, BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
	JP 2007326981	A	20071220	JP 2006-160408	20060609
PRAI	JP 2006-160408	A	20060609		

AB A fluorescent material which comprises a **β-Sialon** represented by the general formula Si6-ZAlZOZN8-Z as a base material and **europium** in soln. as a luminescent center, and is a powder which, when examd. by the laser diffraction/scattering method, gives a particle diam. distribution in which the cumulative 10% diam. (D10) is 7-20 μm and the cumulative 90% diam. (D90) is 50-90 μm. It is less apt to decrease in luminescent intensity. Also provided is an illuminator employing this fluorescent material. This fluorescent material can be produced by mixing a silicon nitride powder, an aluminum nitride powder, an aluminum compd. as an optional ingredient, and an **europium** compd. and keeping the resultant raw-material powder in a nitrogen atm. or non-oxidizing atm. at

1850-2050° for 9 h or longer.
RE.CNT 6 THERE ARE 6 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L2 ANSWER 2 OF 23 CAPLUS COPYRIGHT 2008 ACS on STN
Full Text | Citing References
AN 2007:1164553 CAPLUS
DN 148:244403
TI Development of SiAlON - from mechanical to optical applications
AU Yamada, Tetsuo; Yamao, Takeshi; Sakata, Shin'ichi
CS Specialty Chemicals & Products Company, UBE Industries, Ltd., Ube, Yamaguchi, 755-8633, Japan
SO Key Engineering Materials (2007), 352(Innovation in Ceramic Science and Engineering), 173-178
CODEN: KEMAEY; ISSN: 1013-9826
PB Trans Tech Publications Ltd.
DT Journal
LA English
AB Various rare-earth-doped α-SiAlON powders with high purity were prepd. to study mech. and optical properties of SiAlON-based functional materials in connection with ionic radius and electronic structure of rare-earth elements. Single phase rare-earth-doped α-SiAlON powders were obtained at a temp. as low as 1873 K by heating powder mixts. of rare-earth oxide, AlN and highly active ultrafine amorphous Si3N4. Bending strength of highly dense rare-earth-doped α/**β-SiAlON**-based ceramics was increased with decreasing radii of rare-earth ions, i.e., Yb-SiAlON-based ceramics exhibited excellent high-temp. strength and oxidn. resistance caused by the small ionic radius of ytterbium. As for optical application, α-SiAlON is an excellent host lattice with good thermal and chem. stability for doping rare-earth element which activates photoluminescence. **Europium**-doped Ca-α-SiAlON phosphor formulated as CaxEuy(Si,Al)12(O,N)16 (where 0<x+y<2) was prepd. to obtain high quality phosphor with high brightness and desired emission characteristics. Photoluminescence spectra of the resultant **Europium**-doped Ca-α-SiAlON exhibited high emission intensity at peak wavelength of 580-600 nm giving the better yellow color tone than Cerium-doped yttrium aluminum garnet for applying white LED. It was demonstrated that nitrides or oxynitrides were the innovative materials for the diverse range of high performance specialty applications.
RE.CNT 14 THERE ARE 14 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L2 ANSWER 3 OF 23 CAPLUS COPYRIGHT 2008 ACS on STN
Full Text | Citing References
AN 2007:1152736 CAPLUS
DN 148:41596
TI Synthesis and photoluminescence properties of **β-sialon**:Eu2+ (Si6-zAlzOzN8-z:Eu2+). A promising green oxynitride phosphor for white light-emitting diodes
AU Xie, R.-J.; Hirosaki, N.; Li, H.-L.; Li, Y. Q.; Mitomo, M.
CS Nano Ceramics Center, National Institute for Materials Science, Tsukuba, Ibaraki, 305-0044, Japan
SO Journal of the Electrochemical Society (2007), 154(10), J314-J319
CODEN: JESOAN; ISSN: 0013-4651
PB Electrochemical Society
DT Journal
LA English
AB Divalent **europium**-activated **β-sialon** (Si6-zAlzOzN8-z, 0.1 ≤ z ≤ 2.0) phosphors with dopant concn. varying in the range of 0.02-1.5 mol.% were synthesized by firing the powder mixt. of α-Si3N4, AlN, Al2O3, and Eu2O3 at 2000° for 2 h under a nitrogen-gas pressure of 1.0 MPa. The phase purity, microstructure, luminescence spectra, and thermal quenching of the fired

β-sialon:Eu2+ phosphors were investigated. The samples with lower z values ($z \leq 1.0$) showed higher phase purity, finer and more uniform particle size, and higher emission. Green luminescence of Eu2+ (λem = 528-550 nm) was achieved in β-sialons upon near-UV (NUV) or blue-light excitations. Furthermore, the **β-sialon**:Eu2+ phosphors had small thermal quenching, the emission intensity of which attained 84-87% of that measured at room temp. The exptl. data clearly indicates that **β-sialon**:Eu2+ has great potentials as a down-conversion green phosphor for white light-emitting diodes (LEDs) utilizing NUV or blue LEDs as the primary light source.

RE.CNT 27 THERE ARE 27 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L2 ANSWER 4 OF 23 CAPLUS COPYRIGHT 2008 ACS on STN

Full Text | Citing References

AN 2007:760338 CAPLUS
DN 147:153705
TI Light-emitting apparatus employing light-emitting devices and heat-resistant phosphor wavelength converters
IN Masuda, Masashi; Suzuki, Jun; Inoguchi, Tsukasa
PA Sharp Corp., Japan
SO Jpn. Kokai Tokkyo Koho, 16pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2007180483	A	20070712	JP 2006-183685	20060703
PRAI	JP 2005-345884	A	20051130		

AB The app., useful as backlights for LCDs, includes a device for emitting primary light, and a wavelength conversion section absorbing the primary light and emitting secondary light having wavelength higher than that of the primary light. The section contain (1) green-emitting **Eu**-activated **β-Sialon** phosphors EuaSibAlcOdNe (a = 0.005-0.4; b + c = 12; d + e = 16) and red-emitting **Eu**-activated phosphors (MI1-fEuf)MIISiN3 (MI = Mg, Ca, Sr, Ba; MII = Al, Ga, In, Sc, Y, La, Gd, Lu; f = 0.001-0.05), or (2) yellow-emitting **Eu**-activated α-Sialon phosphors MIIIgEuhSijAlkOmNn (MIII = Mg, Ca, Sr, Ba; $0 < g \leq 3.0$; h = 0.005-0.4; j + k = 12; m + n = 16). Preferably, the light-emitting devices comprise Ga nitride-type semiconductors emitting primary light having wavelength peak 430-380 nm.

L2 ANSWER 5 OF 23 CAPLUS COPYRIGHT 2008 ACS on STN

Full Text | Citing References

AN 2007:583857 CAPLUS
DN 146:526385
TI SiAlON cutting tools and their cutting tool equipments
IN Toyota, Ryoji; Abukawa, Kohei
PA NGK Spark Plug Co., Ltd., Japan
SO Jpn. Kokai Tokkyo Koho, 9pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2007130700	A	20070531	JP 2005-324179	20051108
PRAI	JP 2005-324179		20051108		

AB The SiAlON cutting tool comprises sintered SiAlON contg. α-SiAlON phase, **β-SiAlON** phase, and sintering aid-derived rare earth metals, wherein **β-SiAlON** represented by Si6-ZAlZOZN8-Z (Z = 0.2-0.7), a part or all of the grain boundaries comprise melilite phase, the content of the melilite phase is 0.2-1.0 in max. x-ray intensity ratio

to **β-SiAlON**, α rate of α-SiAlON content is 10-40%, and Vicker's hardness at room temp. is ≥16 GPa. The cutting tool equipments comprise the SiAlON cutting tools and their holders.

L2 ANSWER 6 OF 23 CAPLUS COPYRIGHT 2008 ACS on STN

Full Text | Citing References

AN 2007:583855 CAPLUS
DN 146:526384
TI SiAlON cutting tools for processing of heat-resistant alloys
IN Abukawa, Kohei; Toyota, Ryoji
PA NGK Spark Plug Co., Ltd., Japan
SO Jpn. Kokai Tokkyo Koho, 9pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2007130699	A	20070531	JP 2005-324178	20051108
PRAI	JP 2005-324178		20051108		

AB The SiAlON cutting tools comprise sintered SiAlON contg. SiAlON phases composed of α-SiAlON and **β-SiAlON** and grain boundary layers composed of glass phases and/or crystal phases, wherein the sintered SiAlON contains 3-10 mol% of oxides of ≥1 of elements selected from Sc, Y, Dy, Yb, and Lu and the Z value of **β-SiAlON** represented by Si6-ZAlZOZN8-Z (0< Z ≤4.2) and α rate which shows the rate of α-SiAlON in the SiAlON phase satisfy (α rate)0.81 × (Z value)0.19 = 12.1-19.4.

L2 ANSWER 7 OF 23 CAPLUS COPYRIGHT 2008 ACS on STN

Full Text | Citing References

AN 2006:979012 CAPLUS
DN 145:344963
TI Light emitting devices employing a mixture of fluorescent materials and illumination apparatus
IN Sakuma, Ken; Kimura, Naoki; Masuko, Koichiro; Hirosaki, Naoto
PA Fujikura Ltd., Independent Administrative Institution, Japan; National Institute for Materials Science
SO U.S. Pat. Appl. Publ., 20pp.
CODEN: USXXCO
DT Patent
LA English
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 20060208262	A1	20060921	US 2006-344126	20060201
	US 7253446	B2	20070807		
	JP 2006261512	A	20060928	JP 2005-79059	20050318
	KR 2006101295	A	20060922	KR 2006-24029	20060315
	KR 754034	B1	20070904		
	EP 1710291	A2	20061011	EP 2006-251400	20060316
	EP 1710291	A3	20061220		
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, PL, SK, BA, HR, IS, YU				
	CN 1881629	A	20061220	CN 2006-10058559	20060316
PRAI	JP 2005-79059	A	20050318		

AB Light-emitting devices are described which comprise a semiconductor light-emitting element that emits blue-violet or blue light and a fluorescent material that absorbs the light emitted by the semiconductor light-emitting element and emits fluorescence of wavelengths different from the light, wherein the fluorescent material includes a mixt. of a first fluorescent material, a second fluorescent material that has a longer emission wavelength than that of the first fluorescent material,

and a third fluorescent material that has a longer emission wavelength than the second fluorescent material, and the first fluorescent material is an **europium**-activated **β-SiAlON** fluorescent material, the second fluorescent material is an **europium**-activated α-SiAlON fluorescent material, and the third fluorescent material is a nitride cryst. red fluorescent material of a general formula (Ca,**Eu**)AlSiN3. An illumination app. is also discussed which includes a light source including a light emitting device as described above.

RE.CNT 16 THERE ARE 16 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L2 ANSWER 8 OF 23 CAPLUS COPYRIGHT 2008 ACS on STN

Full Text | Citing References

AN 2006:795432 CAPLUS
DN 145:215813
TI Preparation of rare earth-doped Sialon ceramics from silicon nitride powders
IN Yeckley, Russell L.
PA Kennametal Inc., USA
SO U.S. Pat. Appl. Publ., 19 pp.
CODEN: USXXCO
DT Patent
LA English
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 20060178256	A1	20060810	US 2005-54004	20050209
	US 7309673	B2	20071218		
	CA 2596743	A1	20061116	CA 2006-2596743	20060203
	WO 2006121477	A2	20061116	WO 2006-US4616	20060203
	WO 2006121477	A3	20070222		
	W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SE, SG, SK, SL, SM, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW				
	RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG, BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
	EP 1856006	A2	20071121	EP 2006-769750	20060203
	R: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LI, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR				
	US 20060240971	A1	20061026	US 2006-472976	20060622
	US 7223709	B2	20070529		
	CN 101133001	A	20080227	CN 2006-80006428	20070829
	KR 2007110346	A	20071116	KR 2007-720612	20070907
PRAI	US 2005-54004	A	20050209		
	WO 2006-US4616	W	20060203		

AB A SiAlON ceramic body is produced from a starting powder mixt. including silicon nitride powder and one or more powders that provide aluminum, oxygen, nitrogen, and two rare earth elements to the SiAlON ceramic body, the rare earth elements being from at least two groups among group I = La, Ce, Pr, Nd, Pm, Sm and **Eu**; group II = Gd, Tb, Dy and Ho; and group III = Er, Tm, Yb and Lu. The SiAlON ceramic body includes a two-phase composite contg. an α'-SiAlON phase and a **β'-SiAlON** phase, the α'-SiAlON phase comprising one or more of the selected rare earth elements excluding La and Ce. The silicon nitride powder makes up .gtorsim.70 wt.% of the starting powder mixt., the β-Si3N4 phase representing 0~1.6 wt.% of the silicon nitride powder.

L2 ANSWER 9 OF 23 CAPLUS COPYRIGHT 2008 ACS on STN

Full Text | Citing References

AN 2005:1257289 CAPLUS
DN 144:300927
TI New sialon phosphors and white LEDs
AU Hirosaki, Naoto; Xie, Rong-Jun; Sakuma, Ken
CS Adv. Mater. Lab., Natl. Inst. Mater. Sci., Tsukuba, 305-0044, Japan
SO Oyo Butsuri (2005), 74(11), 1449-1452
CODEN: OYBSA9; ISSN: 0369-8009
PB Oyo Butsuri Gakkai
DT Journal; General Review
LA Japanese
AB A review. The authors have developed 3 kinds of divalent **Eu** activated oxynitride/nitride phosphors, including yellow α-sialon, red CaAlSiN3 (CASN), and green **β-sialon** phosphors, and prepd. white light-emitting diodes by combining these phosphors with blue LED chips. These novel phosphors have the merit of being excited efficiently under 450-nm blue light radiation. A highly efficient warm white LED, with a luminous efficacy of 50.4 lm/W and a color temp. of 3080 K, was realized by using the α-sialon yellow phosphor and a blue LED. By coupling the above-mentioned 3 phosphors to a blue LED, white LED lamps with a high color rendering index were prepd. They have a color temp. of 2800-6600 K, a color rendering index of >80, and a luminous efficacy of 25-32 lm/W. Both types of white LEDs have excellent chromatic stability against temp. These white LED lamps are useful for general illumination.

L2 ANSWER 10 OF 23 CAPLUS COPYRIGHT 2008 ACS on STN

Full Text | Citing References

AN 2005:483551 CAPLUS
DN 143:182005
TI Characterization and properties of green-emitting **β-SiAlON**:Eu2+ powder phosphors for white light-emitting diodes
AU Hirosaki, Naoto; Xie, Rong-Jun; Kimoto, Koji; Sekiguchi, Takashi; Yamamoto, Yoshinobu; Suehiro, Takayuki; Mitomo, Mamoru
CS Advanced Materials Laboratory, National Institute for Materials Science (NIMS), Tsukuba, Ibaraki, 305-0044, Japan
SO Applied Physics Letters (2005), 86(21), 211905/1-211905/3
CODEN: APPLAB; ISSN: 0003-6951
PB American Institute of Physics
DT Journal
LA English
AB This letter reports a **β-SiAlON**:Eu2+ green phosphor with the compn. of Eu0.00296Si0.41395Al0.01334O0.0044N0.56528. The phosphor powder exhibits a rod-like morphol. with the length of ~4 μm and the diam. of ~0.5 μm. It can be excited efficiently over a broad spectral range between 280 and 480 nm, and has an emission peak at 535 nm with a full width at half max. of 55 nm. It has a superior color chromaticity of x=0.32 and y=0.64. The internal and external quantum efficiencies of this phosphor is 70% and 61% at λex=303 nm, resp. This newly developed green phosphor has potential applications in phosphor-converted white LEDs.
RE.CNT 17 THERE ARE 17 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L2 ANSWER 11 OF 23 CAPLUS COPYRIGHT 2008 ACS on STN

Full Text | Citing References

AN 2004:1008525 CAPLUS
DN 142:450349
TI **Eu** stabilized α-Sialon ceramics derived from SHS-synthesized powders
AU Jiang, Jiu-Xin; Wang, Pei-Ling; He, Wan-Bao; Chen, Wei-Wu; Zhuang, Han-Rui; Cheng, Yi-Bing; Yan, Dong-Sheng
CS State Key Lab of High Performance Ceramics and Superfine Microstructure, Shanghai Institute of Ceramics, Chinese Academy of Sciences, Shanghai, 200050, Peop. Rep. China

SO Materials Letters (2004), Volume Date 2005, 59(2-3), 205-209
CODEN: MLETDJ; ISSN: 0167-577X
PB Elsevier B.V.
DT Journal
LA English
AB The characteristics of **Eu**-stabilized α-Sialon ceramics derived from self-propagating high-temp. synthesis (SHS) **Eu** α-Sialon powders without and with the addn. of Y2O3 are investigated. The results showed that the amt. of α-Sialon phase formed in sintered **Eu** α-Sialon compn. was much less than that in SHS-ed powder when the compn. was hot-pressed at 1800 °C for 1 h, while the transformation of α-Sialon to **β-Sialon** phase did occur at the same time, which could be attributed to the metastability of SHS-ed powder because of the high heating and cooling rate during the SHS process and the redn. of Eu3+ to Eu2+ under the redn. conditions during hot pressing. By addn. of Y2O3 into SHS-ed **Eu** α-Sialon powder, thus to form (Y,**Eu**) α-Sialon phase in the sintered sample, the stability of α-Sialon phase was improved, as the ratio of α-Sialon to **β-Sialon** was increased from 70 wt.% in SHS-ed powder to 83 wt.% in the sintered product by 50 mol% of Y2O3 added into SHS-ed powder.
RE.CNT 22 THERE ARE 22 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L2 ANSWER 12 OF 23 CAPLUS COPYRIGHT 2008 ACS on STN

Full Text | Citing References

AN 2004:650915 CAPLUS
DN 141:181595
TI Sialon-based oxynitride phosphor, process for its production, and use thereof
IN Yamada, Tetsuo; Sakata, Shin-Ichi
PA Ube Industries, Ltd., Japan
SO Eur. Pat. Appl., 31 pp.
CODEN: EPXXDW
DT Patent
LA English
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 1445295	A1	20040811	EP 2004-2508	20040205
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK				
	JP 2004238505	A	20040826	JP 2003-29274	20030206
	JP 4052136	B2	20080227		
	JP 2004238506	A	20040826	JP 2003-29277	20030206
	JP 4066828	B2	20080326		
	US 20040155225	A1	20040812	US 2004-770700	20040203
	US 7074346	B2	20060711		
PRAI	JP 2003-29274	A	20030206		
	JP 2003-29277	A	20030206		

AB α-Sialon-based oxynitride phosphors are described for which the content of α-sialon represented by the general formula MxSi12-(m+n)Al(m+n)OnN16-n:Lny (M = ⩾1 of Li, Ca, Mg, Y, or lanthanide metals excluding La and Ce; Ln is ⩾1 lanthanide metal selected from Ce, Pr, and La or ⩾1 lanthanide metal selected from **Eu**, Dy, Er, Tb, and Yb; 0.3 ⩽ x+y < 1.5; 0 < y < 0.7; 0.3 ⩽ m < 4.5; 0 < n < 2.25; and m = ax + by, where a is the valence of M and b is the valence of Ln), wherein all or a portion of M dissolved in the α-sialon is replaced with Ln as the luminescence center, is ⩾75 wt. % when the lanthanide is selected from among Ce, Pr, and La and ⩾90 wt. % when Ln is ⩾1 of **Eu**, Dy, Er, Tb, and Yb, and the content of metal impurities is <0.01 wt%. The part of the material which is not α-sialon may be **β-sialon** and oxynitride glass. Methods for prepg. the phosphors are described which entail prepg. a precursor mixt. and firing at 1400-2000° in a N-contg. inert atm. Light-emitting devices employing the phosphors as color conversion

phosphors are also described.

L2 ANSWER 13 OF 23 CAPLUS COPYRIGHT 2008 ACS on STN

Full Text | Citing References

AN 2004:349180 CAPLUS
DN 141:58174
TI Self-propagating high-temperature synthesis of α-SiAlON doped by RE (RE=**Eu**,Pr,Ce) and codoped by RE and yttrium
AU Jiang, Jiuxin; Wang, Peiling; He, Wanbao; Chen, Weiwu; Zhuang, Hanrui; Cheng, Yibing; Yan, Dongsheng
CS The State Key Lab of High Performance Ceramics and Superfine Microstructure, Shanghai Institute of Ceramics, Chinese Academy of Science, Shanghai, 200050, Peop. Rep. China
SO Journal of the American Ceramic Society (2004), 87(4), 703-705
CODEN: JACTAW; ISSN: 0002-7820
PB American Ceramic Society
DT Journal
LA English
AB Self-propagating high-temp. synthesis (SHS) was applied to synthesize α-SiAlON powders doped by RE (RE = **Eu**,Pr,Ce) and codoped by RE and yttrium. The results showed that the wt. ratio of α-SiAlON to (α-SiAlON + **β-SiAlON**) decreased from 70, 55, and 25% for **europium**-, praseodymium-, and cerium-doped α-SiAlON compns., resp., and the wt. percentage of α-SiAlON phase increased to 100% for both (**Eu**,Y) and (Pr,Y) systems and 94% for the (Ce,Y) system, indicating SHS is a promising approach for synthesizing α-SiAlONs stabilized by the cations that could not be incorporated into the α-SiAlON structure by conventional sintering methods.
RE.CNT 13 THERE ARE 13 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L2 ANSWER 14 OF 23 CAPLUS COPYRIGHT 2008 ACS on STN

Full Text | Citing References

AN 2002:944530 CAPLUS
DN 138:30789
TI Oxynitride phosphor activated by a rare earth element, and sialon type phosphor
IN Mitomo, Mamoru; Endo, Tadashi; Ueda, Kyouta; Komatsu, Masakazu
PA National Institute for Materials Science, Japan
SO Eur. Pat. Appl., 18 pp.
CODEN: EPXXDW
DT Patent
LA English
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 1264873	A2	20021211	EP 2002-12727	20020607
	EP 1264873	A3	20051026		
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR				
	JP 2002363554	A	20021218	JP 2001-171831	20010607
	JP 3668770	B2	20050706		
	JP 2003336059	A	20031128	JP 2002-149022	20020523
	JP 3726131	B2	20051214		
	US 20030030038	A1	20030213	US 2002-162614	20020606
	US 6632379	B2	20031014		
	US 20030168643	A1	20030911	US 2003-408233	20030408
	US 6776927	B2	20040817		
PRAI	JP 2001-171831	A	20010607		
	JP 2002-149022	A	20020523		
	US 2002-162614	A3	20020606		

AB An oxynitride phosphor is described which is activated by a rare earth element, MexSi12-(m+n)Al(m+n)OnN16-n:RelyRe2x, wherein a part or all of metal Me (Me = Ca, Mg, Y and lanthanide metals excluding La and Ce or

mixts. of them) in α-sialon solid soln., is substituted by lanthanide metal Re1 (Re1 = Ce, Pr, **Eu**, Tb, Yb and Er or mixts.), or 2 lanthanide metals Re1 and a coactivator Re2 (Re2 is Dy), to be an emission center. A sialon type phosphor as a powder is also described comprising at least 40% of α-sialon (Cax,My)(Si,Al)12(O,N)16 (M = **Eu**, Tb, Yb and Er, 0.05 <(x+y) <0.3, 0.02 <x <0.27 and 0.03 <y <0.3) and having a structure such that Ca sites of Ca-α-sialon are partially substituted by other metal M, at most 40% of **β-sialon**, and at most 30% of unreacted Si nitride.

L2 ANSWER 15 OF 23 CAPLUS COPYRIGHT 2008 ACS on STN

Full Text | Citing References

AN 2001:191583 CAPLUS
DN 134:299534
TI Implications of kinetically promoted formation of metastable α-Sialon phases
AU Shen, Z.; Nygren, M.
CS Arrhenius Laboratory, Department of Inorganic Chemistry, Stockholm University, Stockholm, S-106 91, Swed.
SO Journal of the European Ceramic Society (2001), 21(5), 611-615
CODEN: JECSER; ISSN: 0955-2219
PB Elsevier Science Ltd.
DT Journal
LA English
AB α-Sialon ceramics are interesting materials, because alone or together with **β-Sialon** they can form in-situ reinforced microstructures which offer the best combinations of strength, hardness and toughness. At >1200°C, the thermal stability of α-Sialon phases has been debated since 1992, however, and it has been discussed if any α-Sialon phase can be formed in Ce-, La-, **Eu**- and Sr-doped Sialon systems. Using a novel rapid densification process (spark plasma sintering - SPS), which allows prepn. of fully dense compacts of Sialon ceramics within a few minutes, we show that α-Sialon phases are initially formed in these systems and that subsequent in situ and ex situ post heat-treatment results in a decompn. of the α-Sialon phase. These observations show that cations with a radius >1 Å may stabilize the α-Sialon phase, which contrasts with previous findings. The thermal stability of these α-Sialon phases is strongly dependent on the kinetics of the reactions occurring when approaching thermodn. equil. The findings might also have bearing on other Sialon systems than those studied here.
RE.CNT 19 THERE ARE 19 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L2 ANSWER 16 OF 23 CAPLUS COPYRIGHT 2008 ACS on STN

Full Text | Citing References

AN 1999:204998 CAPLUS
DN 131:8295
TI Preparation and crystal structure of a new Sr containing Sialon phase Sr2AlxSi12-xN16-xO2+x (x ≈ 2)
AU Shen, Zhijian; Grins, Jekabs; Esmaeilzadeh, Saeid; Ehrenberg, Helmut
CS Arrhenius Laboratory, Department of Inorganic Chemistry, Stockholm University, Stockholm, SE-106 91, Swed.
SO Journal of Materials Chemistry (1999), 9(4), 1019-1022
CODEN: JMACEP; ISSN: 0959-9428
PB Royal Society of Chemistry
DT Journal
LA English
AB A nitrogen-rich Sialon phase contg. Sr or **Eu**, named the S-phase, has been reported to form in the M'-Si-Al-O-N systems with M' = Sr and **Eu**. A sample with overall compn. Sr2Al2.5Si10O4N14.5 hot-pressed at 1800 °C for 2 h contained approx. 85 vol% of the S-phase, in addn. the α- and **β-Sialon** phases and an amorphous phase. Its structure was solved from X-ray synchrotron powder data (λ = 1.1608

Å), using direct methods, and was refined by the Rietveld method from 131 reflections in the 2θ range 10-59° to RF = 2.7%, with the assumed compn. Sr2Al2Si10O4N14, space group Imm2, a = 8.2788(9), b = 9.5757(9),c = 4.9158(4) Å, V = 389.7 Å3. The structure model was confirmed by its electron diffraction pattern and by high-resoln. electron microscopy studies. The structure exhibits a tetrahedral network with high connectivity, each tetrahedron sharing corners with seven surrounding tetrahedra, and the Sr atoms, irregularly coordinated by eight O/N atoms, are found in tunnels extending along [001].
RE.CNT 19 THERE ARE 19 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L2 ANSWER 17 OF 23 CAPLUS COPYRIGHT 2008 ACS on STN
Full Text | Citing References
AN 1999:75936 CAPLUS
DN 130:212614
TI **Eu**-doped α-Sialon and related phases
AU Shen, Z.; Nygren, M.; Wang, P.; Feng, J.
CS Department of Materials Science and Engineering, Zhejiang University, Hangzhou, 310 027, Peop. Rep. China
SO Journal of Materials Science Letters (1998), 17(20), 1703-1706
CODEN: JMSLD5; ISSN: 0261-8028
PB Kluwer Academic Publishers
DT Journal
LA English
AB Because the Eu2+ ion has a radius of 1.16 Å, it is too large to be accommodated in the α-Sialon structure, but Eu3+, with a radius of 0.95 Å does fit. We have confirmed the-formation of the Eu3+-doped α-Sialon phase by x-ray-diffraction and electron microscope studies combined with element anal. In addn., we have obsd. the formation of two new phases that most probably contain divalent **Eu** ions. A sample with an overall compn. of Eu0.48Si9.227Al2.703O1.178N14.701, i.e., an α-Sialon compn. RexSi12-(m+n)Al(m+n)ON16-n with x = 0.48, m = 1.44 and n = 1.3, was prepd. by hot pressing a powder mixt. of Si3N4, AlN and Eu2O3 at 1800 °C for 2 h-under 35 MPa pressure in a graphite resistance furnace and in a nitrogen atm. The prepd. sample was characterized by its XRD pattern and its microstructure was obsd. using SEM and transmission electron microscopy. The results indicate the formation of **Eu**-doped α-Sialon and shows that the prepd. sample consists of a mixt. of α-Sialon, **β-Sialon** and two other new phases. The unit cell dimensions of the **Eu**-α-Sialon phase (a = 7.7874, c = 5.6590 Å) are typical for a rare-earth stabilized α-Sialon phase with a compn. close to the α-β phase boundary. However, TEM/EDS studies indicate that (i) the α-Sialon phase quite often exhibited an elongated morphol. but equiaxed grains occurred also, (ii) the grains of the Al-rich new phase (#1) were elongated, and (iii) the Si-rich new phase (#2) showed more irregular grain morphol. The α-Sialon phase and the two new phases (#1 and #2) have different **Eu** content and the Al/Si ratios of the two latter phases are quite different. The trivalent **Eu** ions are partly reduced to the divalent state during the sintering procedure. It is thus reasonable to assume that the remaining Eu3+ enters the α-Sialon structure, while the Eu2+ ions, which are too large, are instead incorporated in the new phases #1 and #2.
RE.CNT 8 THERE ARE 8 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L2 ANSWER 18 OF 23 CAPLUS COPYRIGHT 2008 ACS on STN
Full Text | Citing References
AN 1997:143395 CAPLUS
DN 126:241505
TI Absorption spectra of rare-earth-doped α-Sialon ceramics
AU Shen, Zhijian; Nygren, M.; Halenius, U.
CS Department of Materials Science and Engineering, Zhejiang University,

Hangzhou, 310 027, Peop. Rep. China
SO Journal of Materials Science Letters (1997), 16(4), 263-266
CODEN: JMSLD5; ISSN: 0261-8028
PB Chapman & Hall
DT Journal
LA English
AB The UV-visible absorption spectra of a series of rare-earth doped (Y, Nd, Sm, **Eu**, Tb, Dy, Er, and Yb) α-Sialon ceramics are described. The samples examd. were prepd. to have overall compns. in the single-phase α-Sialon area,. There is an absorption edge in the UV region, with wavelength 280-340 nm, for all measured rare earth doped samples. It can be excluded that this edge is due to any electron transition, either within the 4f configuration or between the 4f and 5d levels, since both the 4f electron-free Y-doped α-Sialon and the pure **β-Sialon** sample without any rare-earth additives also show an absorption edge in the same wavelength range. This edge can thus most probably be interpreted as being caused by charge transfer within the Si(Al)-N(O) network.

L2 ANSWER 19 OF 23 CAPLUS COPYRIGHT 2008 ACS on STN
Full Text | Citing References
AN 1994:416150 CAPLUS
DN 121:16150
TI Composite ceramics
IN Nakajo, Shiho; Hakojima, Junichiro; Tsukamoto, Keizo; Yamagishi, Senjo
PA Nihon Cement, Japan
SO Jpn. Kokai Tokkyo Koho, 5 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 06032656	A	19940208	JP 1992-212205	19920716
PRAI	JP 1992-212205		19920716		

AB The composites comprise sinters contg. SiC whiskers, Si6-zAlzOzN8-z (**β-Sialon**), α-Si3N4, and oxides of Group IIIB elements. Optionally, the ratio of **β-Sialon** to α-Si3N4 is 5-50%. Preferably, the **β-Sialon** material powder has Z value ≥0.3. The SiC whiskers may have diam. 0.1-3.0 μm, length 1-50 μm, and aspect ratio 5-50, and the vol. ratio of whiskers to matrix is ≤55%. The composites have high strength and toughness, and are suitable for use as engine parts.

L2 ANSWER 20 OF 23 CAPLUS COPYRIGHT 2008 ACS on STN
Full Text | Citing References
AN 1994:13635 CAPLUS
DN 120:13635
TI Silicon carbide-reinforced sialon ceramic composites
IN Hakojima, Junichiro; Hanada, Toshihiko; Nakajo, Fumimine; Tsukamoto, Keizo; Yamagishi, Senjo
PA Nihon Cement, Japan
SO Jpn. Kokai Tokkyo Koho, 5 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 05221731	A	19930831	JP 1992-59640	19920214
PRAI	JP 1992-59640		19920214		

AB The composites comprise columnar SiC particles, **β-sialon** shown as Si6-zAlzOzN8-z (0< z ≤ 4.2), and group IIIB metal oxides. The composites have high strength and toughness.

L2 ANSWER 21 OF 23 CAPLUS COPYRIGHT 2008 ACS on STN

Full Text | Citing References

AN 1993:566438 CAPLUS
DN 119:166438
TI Silicon carbide whisker-reinforced sialon composite materials
IN Hakojima, Junichiro; Hanada, Toshihiko; Nakajo, Fumimine; Tsukamoto, Keizo; Yamagishi, Senjo
PA Nihon Cement, Japan
SO Jpn. Kokai Tokkyo Koho, 4 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI JP 05139846	A	19930608	JP 1991-332423	19911121
PRAI JP 1991-332423		19911121		

AB The materials comprise SiC whiskers, **β-sialon** (Si6-zAlzOzN8-z; 0 < z ≤ 4.2), and group IIIB oxides. The materials have high strength and tenacity.

L2 ANSWER 22 OF 23 CAPLUS COPYRIGHT 2008 ACS on STN

Full Text | Citing References

AN 1993:501894 CAPLUS
DN 119:101894
TI Sialon ceramic composites reinforced with carbon fibers
IN Hakojima, Junichiro; Hanada, Toshihiko; Nakajo, Chikamine; Tsukamoto, Keizo; Yamagishi, Senjo
PA Nihon Cement, Japan
SO Jpn. Kokai Tokkyo Koho, 5 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI JP 05070243	A	19930323	JP 1991-261133	19910912
PRAI JP 1991-261133		19910912		

AB The composites contain short C fibers coated with metal carbides and/or metal nitrides, **β-sialon** expressed by Si6-xAlzOzN8-z (0 < z ≤ 4.2), and oxides contg. Group IIIB elements. The oxides work as sintering aids, and the composites have high strength and toughness.

L2 ANSWER 23 OF 23 CAPLUS COPYRIGHT 2008 ACS on STN

Full Text | Citing References

AN 1989:17212 CAPLUS
DN 110:17212
TI Electrically conductive Sialon ceramic
IN Kubo, Yutaka
PA Japan
SO Jpn. Kokai Tokkyo Koho, 5
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI JP 63017264	A	19880125	JP 1986-157280	19860704
JP 04077699	B	19921209		
PRAI JP 1986-157280		19860704		

AB The title ceramic comprises a 30-75-vol.% **β-Sialon** (Si6-zAlz Oz N8-z) phase and a 2-70-vol.% elec. conductive phase contg. ≥1

oxide(s), nitride(s), and carbide(s) of Group IV, V, and VI elements with av. grain size of ≤1.5 μm, and has a grain boundary phase contg. Si, Al, ≥1 Group IIIB element(s), O, and N. The ceramic has excellent elec. discharge machinability. Si_3N_4, AlN, Al_2O_3, Y_2O_3, and TiN were mixed, shaped, and sintered to form a ceramic with high elec. cond., heat-impact resistance, and oxidn. resistance.

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